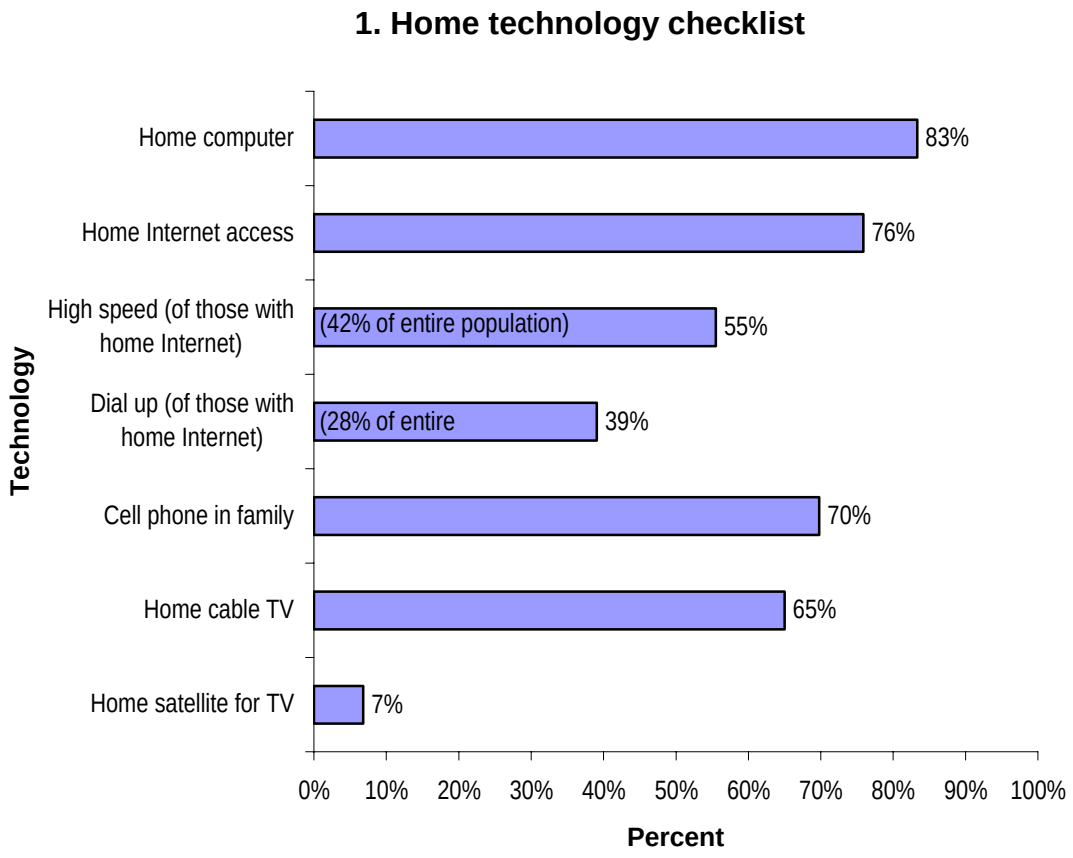
# Findings

## *Technology check list*

Survey respondents report a high level of technology access at home.




Source: 2004 Seattle IT Residential Survey

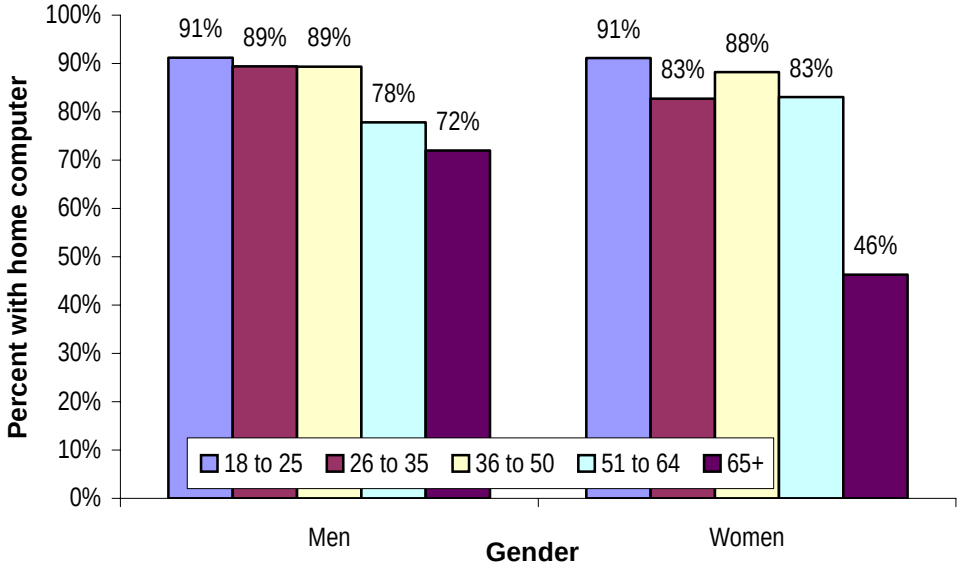
Figure 1 shows that of all the home technology items queried in the survey, respondents were most likely to report having a home computer (83%), followed by home Internet access (76%). Overall, 83% of respondents use the Internet somewhere. Nearly all (91%) of those with home computers also have home Internet access. Eighty-five percent of the respondents said they currently use computers or the Internet, and nearly all of these (92%) say they have a home computer. In addition to the current computer users, another eight percent said they have used either a computer or the Internet in the past. Nearly all current computer users (97%) use email, as do another 42% of former users – 86% of Seattleites overall. Even 31% of the respondents who said they haven't used a computer want to access City services online or believe that email is an effective way to communicate with elected officials or about issues.

### Home computer access

Further analysis, simultaneously considering the influence of income, age, education, gender and ethnicity on home computer ownership shows that not all demographic groups are equally likely to have this technology at home. Specifically, older respondents are less likely to have a computer at home, especially older women (Figure 2), as well as those with less education –

especially with less education and lower income (Figure 3). Although African American respondents were significantly less likely to have home computers (63%, compared with 84% or more of the Caucasian, Asians/ Pacific Islander and Hispanic respondents), these differences disappear when the other factors such as income and education are taken into consideration, suggesting that the effects of ethnicity can be explained by the correlated effects of the more influential other demographic factors.

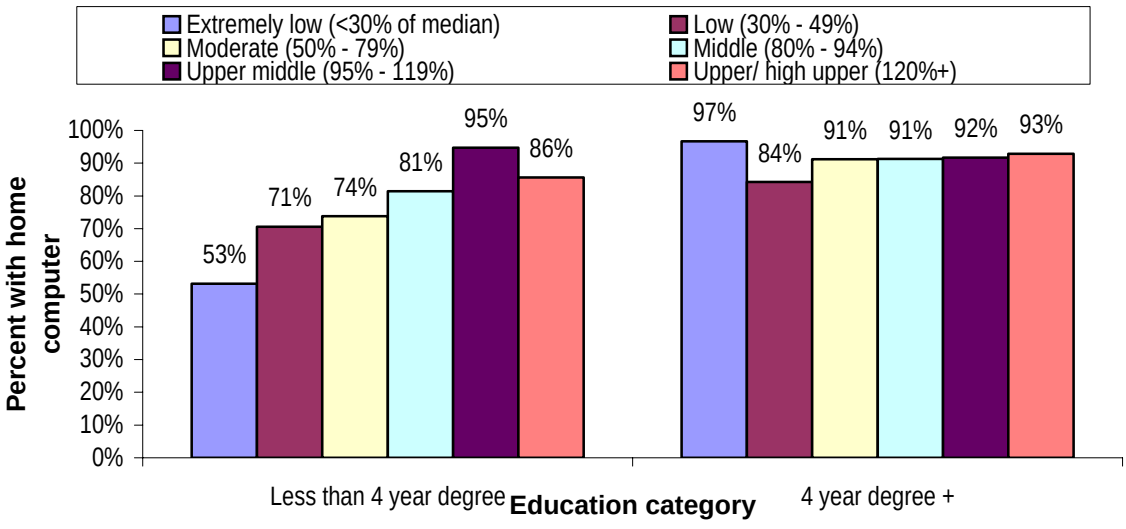
**2. The influence of age on home computer access for men and women**




Source: 2004 Seattle IT Residential Survey

Figure 2 shows that home computer access declines with age similarly for men and women, except for those 65 years or older. At this age, the gender divide is clear, with senior men being more than half again as likely as senior women to have a home computer.

**3. The influence of income on home computer access at two education levels**



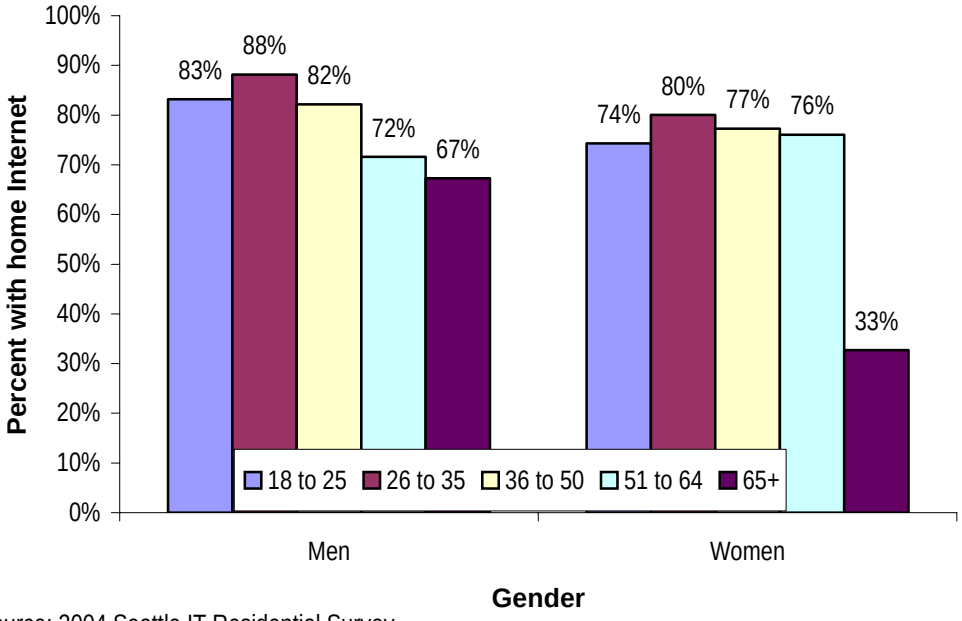

Source: 2004 Seattle IT Residential Survey

Figure 3 shows that home computer access increases with education, and that among those with a four-year college degree or more, income level has little influence on home computer ownership. However, among respondents with less education, a significant relationship emerges between household income and likelihood of home computer ownership so that those respondents with the least education and the least income are also the least likely to have home computer access. Overall, those with more education are about 25% more likely to have home computer access. In the lowest income group, those with more education are nearly twice as likely to have a home computer. This might be partially explained by the disproportionately high representation of students, and perhaps recent graduates, in this group. Overall, 4% of the sample are students, compared with 11% of those in the lowest income group. Students and working students are the most likely of those in this income group to report having home computer access (82% and 100%, respectively).

### Home Internet access

A similar analysis was conducted for home Internet access and results were similar, but more striking, and some additional differences emerged.

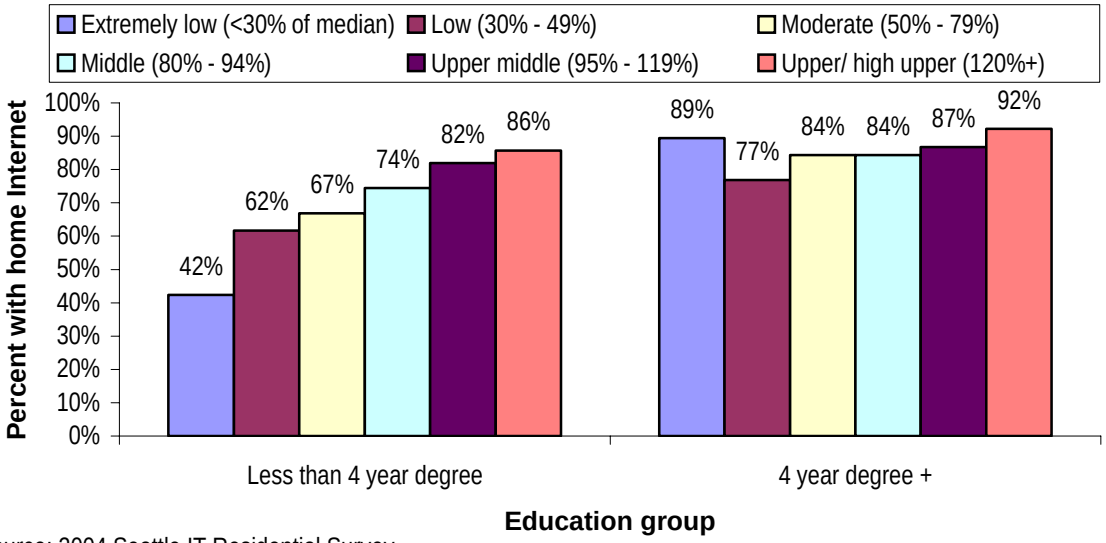
**4. The influence of age on home Internet access for men and women**




Source: 2004 Seattle IT Residential Survey

Figure 4 shows a similar result to Figure 2 – the differences between men and women in home Internet access is slight except among the older respondents where women are half as likely to have Internet access at home. Additional analysis was conducted to explore the effect of these demographic factors on the subgroup of those with home computers. This analysis shows that overall, women *with home computers* are significantly less likely to have home Internet access than men *with home computers* (88% vs. 94%). This effect is consistent across the age groups, but more extreme among the older respondents (71% vs. 94%).

**5. The influence of income on home Internet access at two education levels**

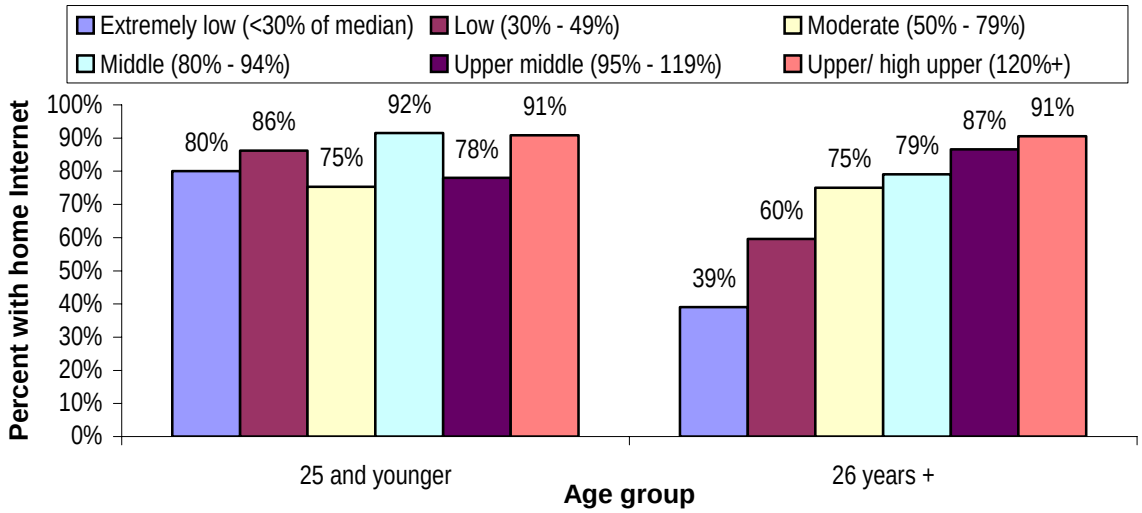



Source: 2004 Seattle IT Residential Survey

Figure 5 shows results very similar to those illustrated in Figure 3: overall, home Internet access increases with income and it increases with education. Looking more closely however, among the respondents with more education, income is *not* an influential factor in home Internet access, while among those with less education, as income increases, so does home Internet access. For those with less than a four-year college education, respondents in the highest income group are about twice as likely to have home Internet access as those in the lowest income group.

Figure 6 shows that home Internet access is not sensitive to income among the youngest respondents (those 25 and younger), but among the older respondents, home Internet access increases with income so that among the respondents who are older than 25, people in the highest income categories are more than twice as likely as the people in the lowest income category to have home Internet access. It may be that young people perceive Internet access as more of a necessity than do older respondents. Again, more than three-fourths of the students in the sample are in the youngest age group, which may contribute to this age effect.

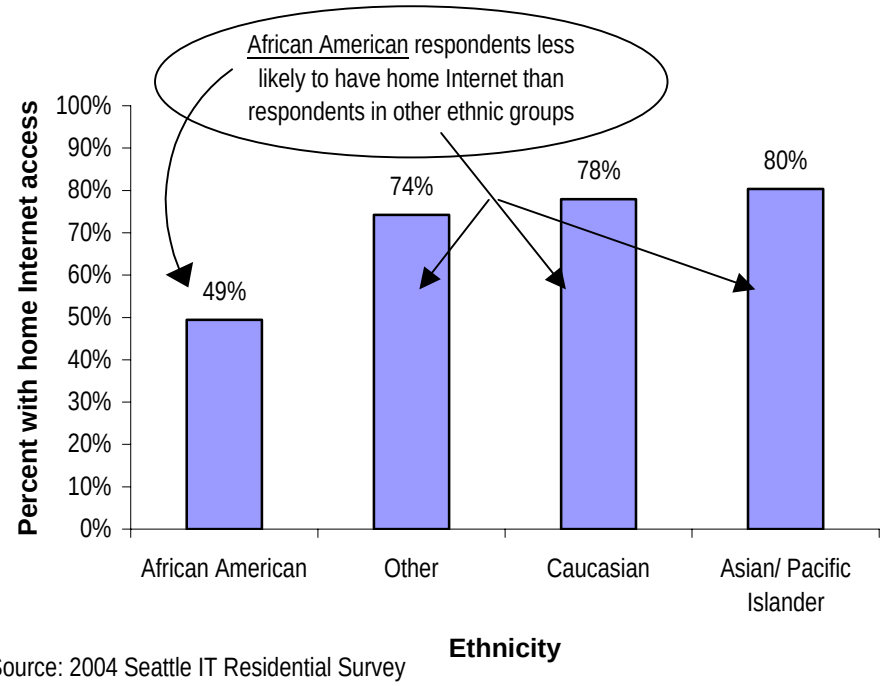
**6. The influence of income on Home Internet access for two age groups**




Source: 2004 Seattle IT Residential Survey

Finally, unlike with home computer access, ethnicity[4] was an important predictor of home Internet access after the influence of the other factors was considered. Ethnicity stood alone, not interacting with any of the other demographic factors. These results are illustrated in Figure 7.

**7. Home Internet access by ethnicity**




Source: 2004 Seattle IT Residential Survey

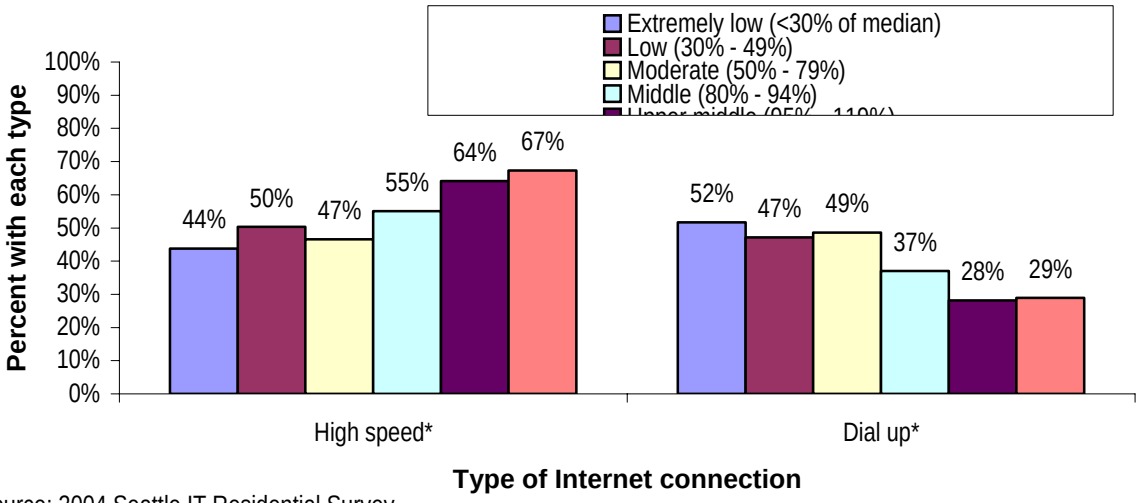
This figure shows that African American respondents are the least likely to have home Internet access, and are significantly less likely than Caucasian or Asian/ Pacific Islander respondents, or respondents of "other" ethnicities (including Hispanic, Native American and multiethnic respondents). It is important to note that the "other" category is made up of groups with tremendous diversity in home Internet access.

[4] Ethnicity is self-reported. Respondents were given the opportunity to indicate multiple ethnic identities. If multiple ethnicities were identified, respondents were asked to indicate their primary ethnicity. Those who did not identify a primary ethnicity are reported as "other."

Specifically, 88% of the Hispanic households report home Internet access, compared with 49% of the Native American households and 52% of the multiethnic and other households. The rate of home Internet access found in Hispanic households in this survey is far higher than that reported in national surveys. Different possible explanations have been proposed:

- The figure may be accurate, a result of a combination of Seattle's generally high level of home Internet access and the possible interest of recent immigrants in using the Internet to communicate with those left behind, and to find Spanish-language news sources.
- Another possibility is that the sample of Hispanic households is somehow not representative of the Hispanic households in Seattle. Further investigation of this sample shows a higher education level among the Hispanic respondents in this sample than among Seattle's Hispanic residents in general. According to the 2000 U.S. Census, 48% of Seattle's Hispanic residents have no more than a high school education, compared with 16% in our sample. Since higher education is consistently associated with increased computer and Internet access, this bias in the sample could also account for the surprisingly high percentage of Hispanic households with home Internet access.

**8. High speed Internet access increases with income and dial up Internet access decreases**




Source: 2004 Seattle IT Residential Survey

## Access for residents with disabilities

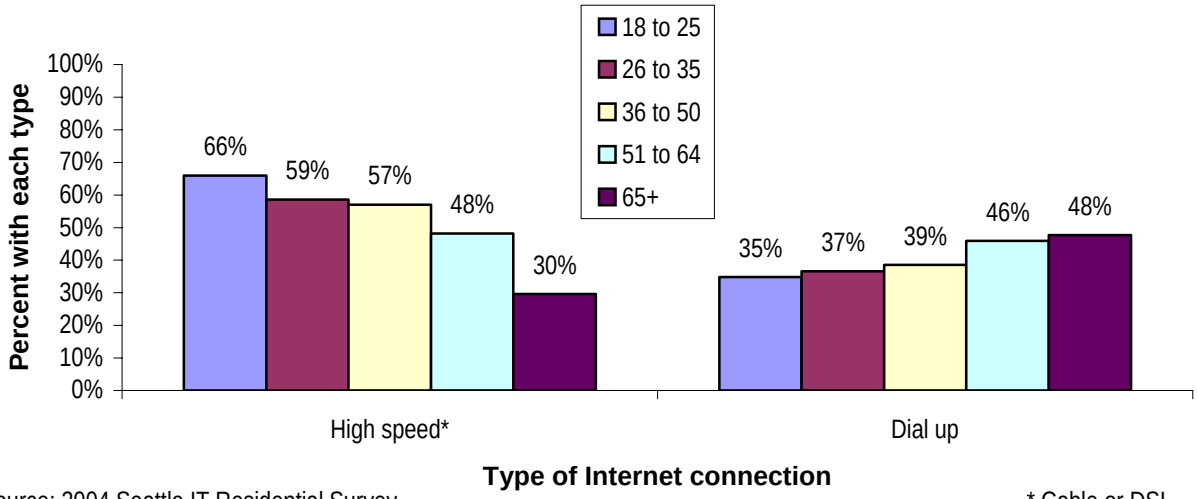
About 10% of the respondents reported having a disability, nearly all of whom said that their disability keeps them from participating fully in work, school, housework or other activities. Relatively few (17%) said that this disability impairs their use of the Internet. These individuals with disabilities are significantly older than those who do not report having a disability and they report significantly lower incomes and less education. Controlling for all these factors, having a disability emerges as a significant factor in use of computers or the Internet (60% of the disabled respondents vs. 88% of the others), or having access to a computer at home (58% vs. 86%).

## Speed of home Internet access

One important consideration in home Internet access is speed of access. Figure 1 shows that overall, 55% of the respondents with home Internet access (42% of total respondents) said they have either DSL or cable. When all demographic factors are considered simultaneously, no interpretable findings emerged. Taken individually, both income and age are related to having high speed Internet access at home. Figure 8 shows that high speed Internet access increases with income from 44% of those in the lowest income category to 67% of those in the highest income category, about a 50% increase. The same figure shows a significant decline in dial up access with increasing income, from a high of 52% among the lowest income homes down to 29% in the highest income homes, a 44% decrease.

Figure 9 shows the opposite pattern with high speed Internet access – as age increases, the percentage of households with high speed access decreases. Two-thirds of the youngest group of respondents with Internet access report having high speed access, down to 30%, about half as many of the oldest group of respondents. The slight increase in dial up access with age did not reach statistical significance.

**9. High speed Internet access decreases with age; the increase in dial up access with age is not significant**



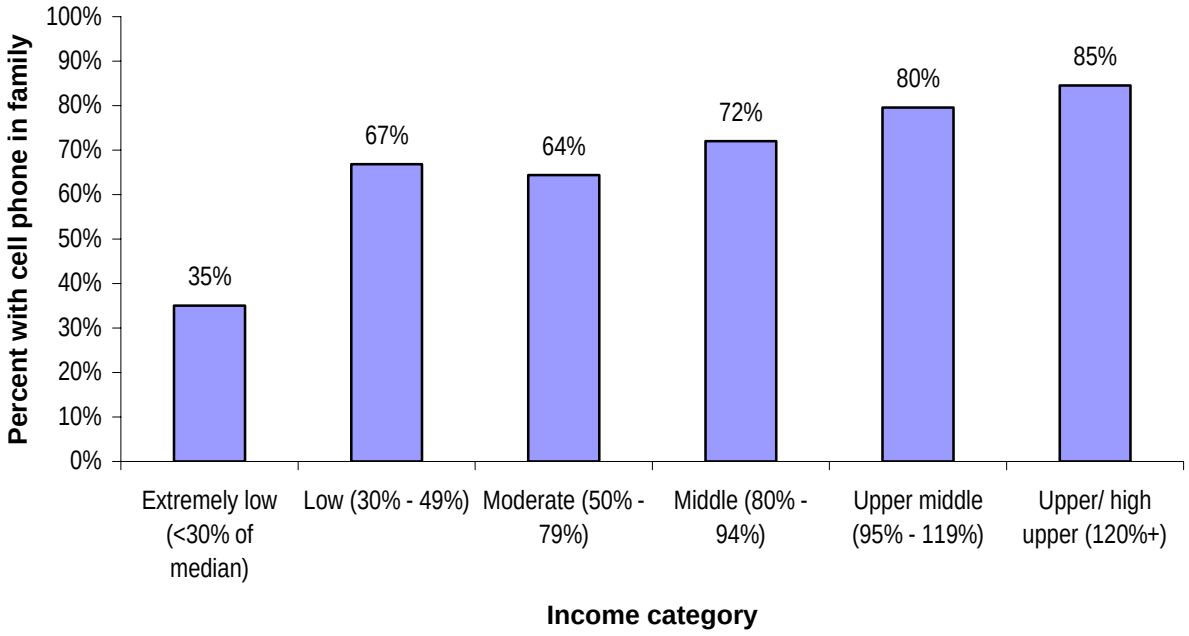

Source: 2004 Seattle IT Residential Survey

* Cable or DSL

## Cell phone in the family

Figure 1 shows that 70% of the respondents overall said some member of their family has a cell phone. Figure 10 shows that having a cell phone in the family is related to household income. About one-third of the respondents in the lowest income category reporting having a cell phone in the family, doubling in the next income group, and continuing to climb up to 85% of the respondents in the highest income category. This was the only demographic factor that was statistically significant when all the demographic factors were considered simultaneously. About a quarter of the respondents have children under 18 at home. These respondents were about 20% more likely than families without children to say they have a cell phone in the family (67% vs. 81%).

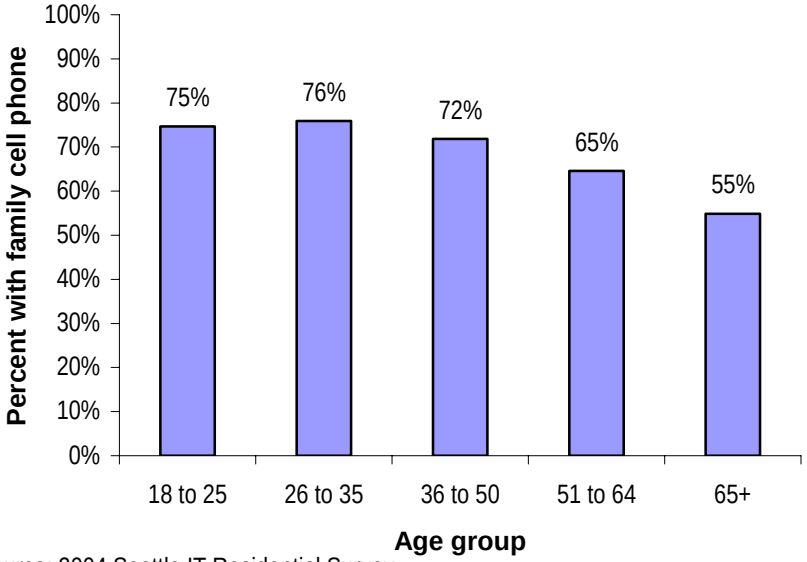
**10. Cell phone in family increases with income**



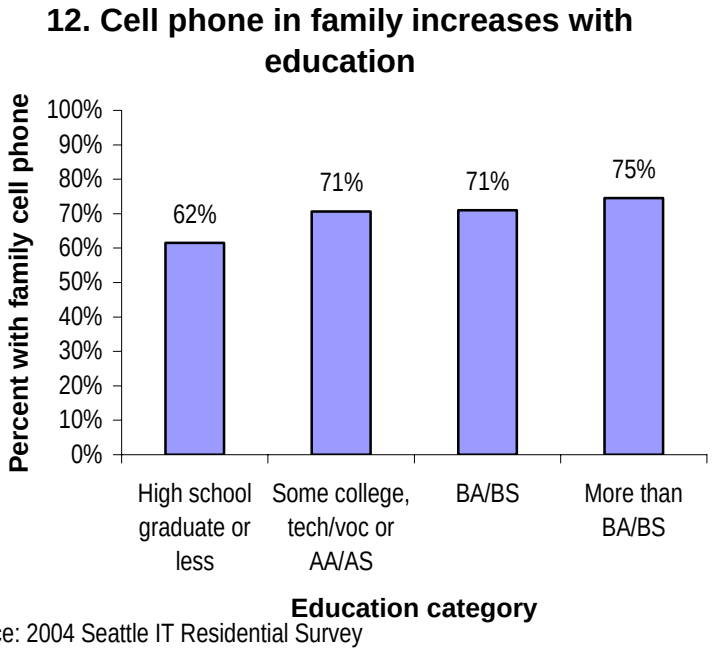

Source: 2004 Seattle IT Residential Survey

Figures 11 and 12 summarize the relationship between cell phones and age (Figure 11) and cell phone and education (Figure 12). These factors were significantly related to cell phone ownership when considered without the influence of the other factors. This different analysis outcome suggests that these factors, education, age and income, may be interrelated, leaving a sufficient amount of unique explanatory power only for income. This means that the influences of age and education illustrated in these figures may actually be due to their impact on income. However, because of the complex interrelationship of these factors, it may be useful to examine the some of the individual relationships.

**11. Cell phone in family decreases with age**




Source: 2004 Seattle IT Residential Survey




Source: 2004 Seattle IT Residential Survey

Figure 11 shows that cell phone ownership decreases with age from about three-fourths of those younger than 36 down to just over half of those in the oldest age group.

Figure 12 shows the increase in cell phone ownership with an increase in education. Sixty-two percent of those with the least education report having a cell phone in the family, up to 75% of those with the highest level of education.

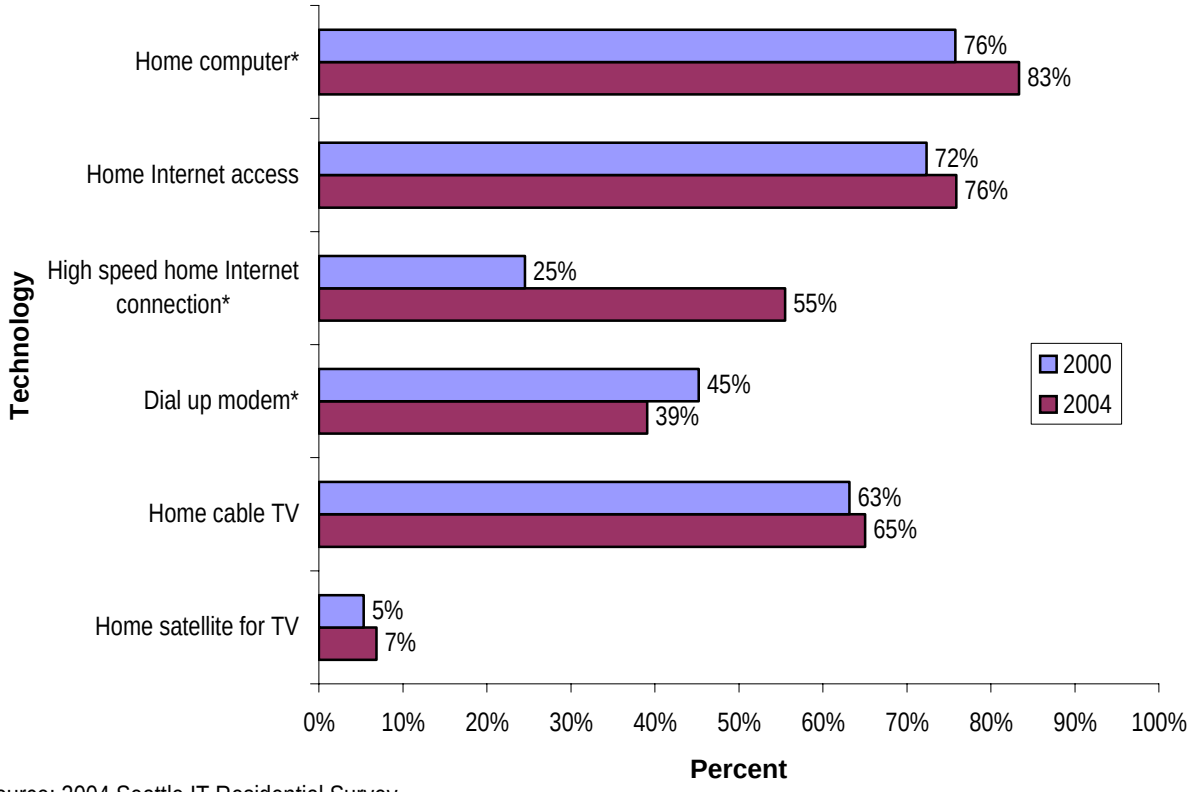
## Cable service

Figure 1 shows that overall, 65% of the respondents said they have cable service for their television at home an seven percent said they have satellite. No differences in likelihood of having cable TV were found except for age – younger respondents are less likely to have cable TV (50%) than older respondents (79%). People with satellite service for their television are less likely to be in the lowest income category (0.7% have satellite). Four percent of the next income group reported having satellite service, up to 8% in the highest income group.

## *Home technology compared with 2000*

A similar sample of Seattle residents was asked some of the same questions in 2000. One of the purposes of the current survey is to update those numbers. In this section, the results of the surveys from 2000 will be compared with those for this year to explore changes in indicators over the past several years.

**13. Home technology checklist in 2000 and 2004**

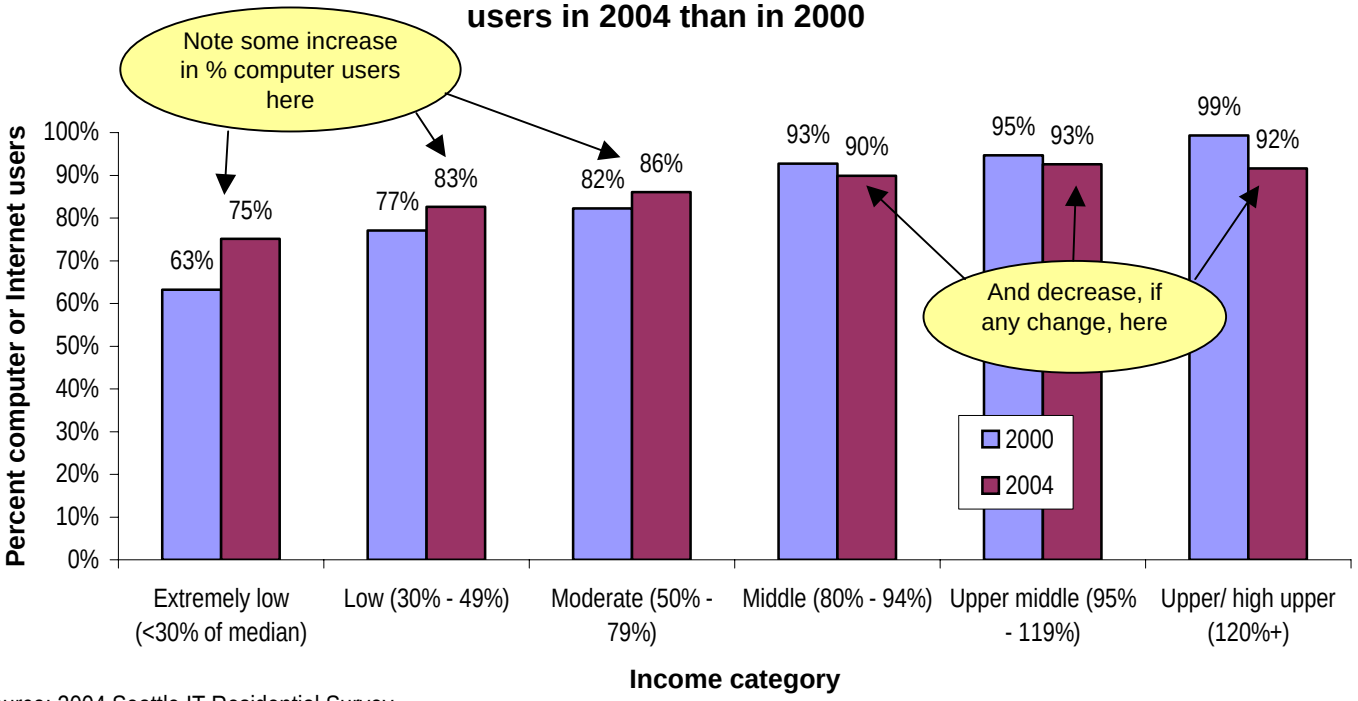



Source: 2004 Seattle IT Residential Survey

Figure 13 shows a slight increase in percentage of households with most types of technology since 2000. Even though the overall percentage of computer users did not change significantly between 2000 and 2004 (88% and 85%, respectively), the percentage of respondents with *home* computer access increased about 10% during this period from 76% to 83%. Further, the percentage of homes with high-speed Internet access (among homes with any Internet access) more than doubled from 25% in 2000 to 55% in 2004, while the percentage of homes with dial up access *decreased* significantly from 45% to 39%. So even though no more people are using computers now than in 2000, more are using them at home and more have faster access to the Internet at home.

Further analysis of these items show that neither the *lack* of change in computer or Internet use, nor the change in home ownership of computers was consistent across income levels. Figures 14 and 15 illustrate these results.

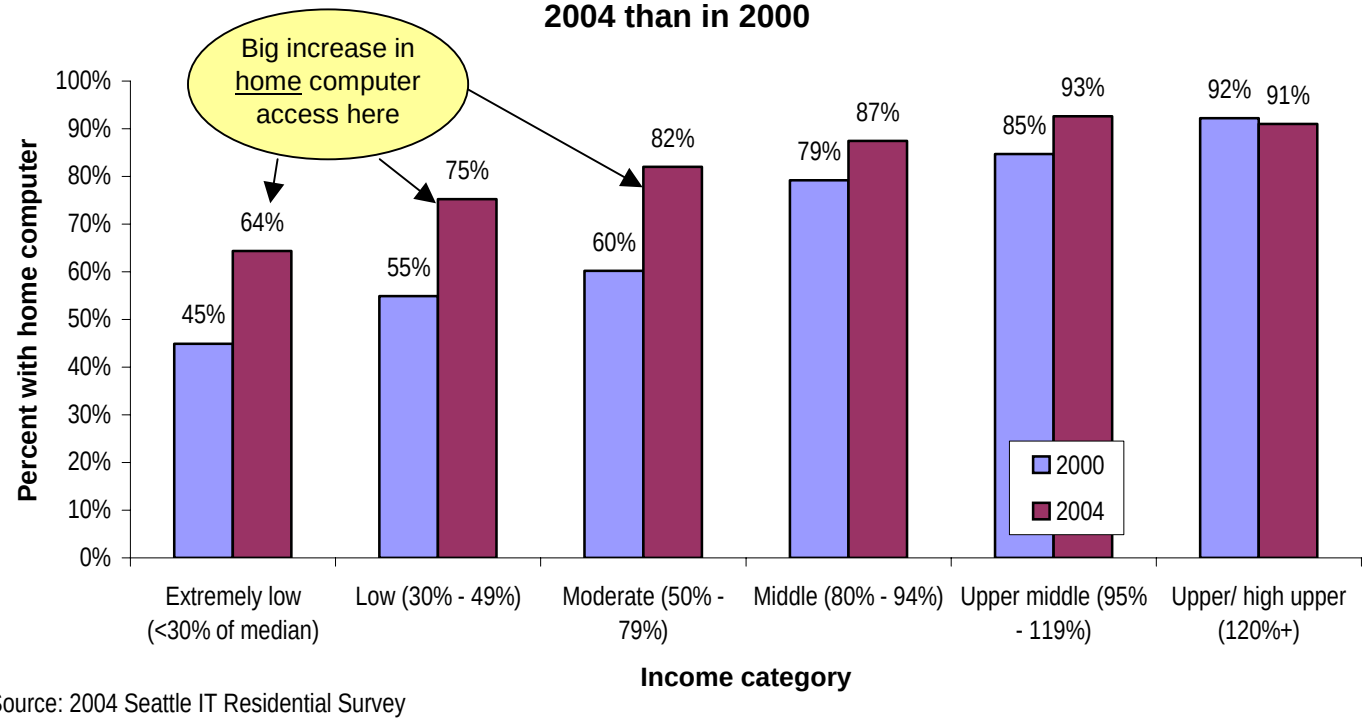
**14. Lower income respondents more likely to be computer or Internet users in 2004 than in 2000**




Source: 2004 Seattle IT Residential Survey

Figure 14 shows an increase in computer or Internet use among the lower income respondents, and no change – or perhaps a slight decrease – among the higher income respondents. Figure 15 a much greater increase in home computer access, most dramatically among the lowest income households.

**15. Lower income households more likely to have home computers in 2004 than in 2000**

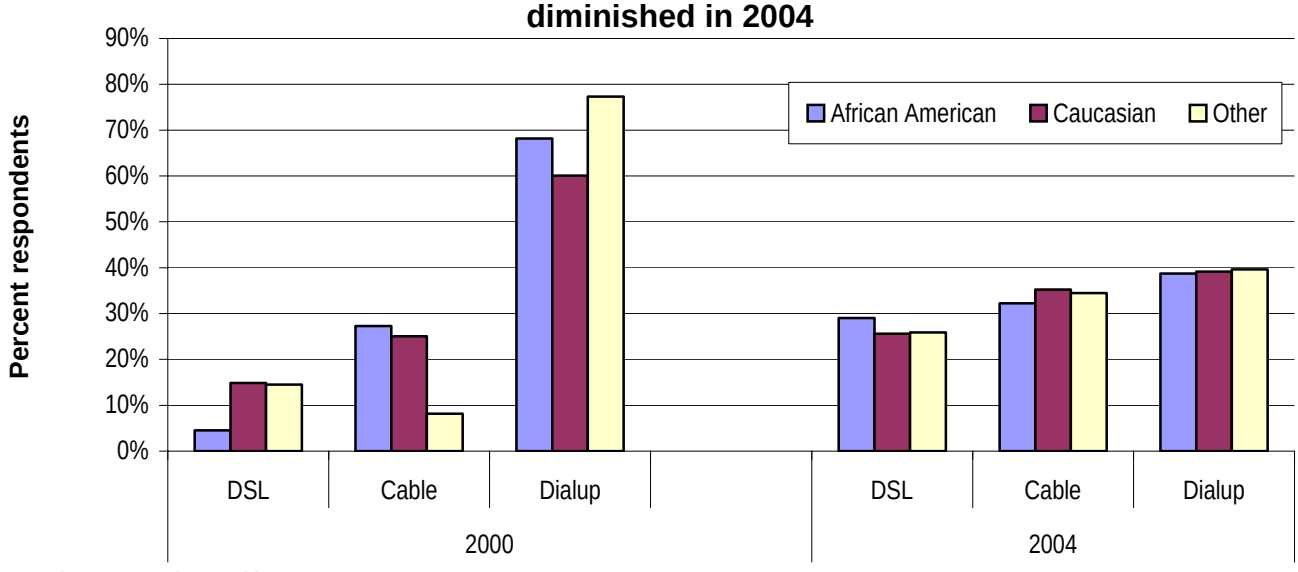



Source: 2004 Seattle IT Residential Survey

For example, Figure 14 shows nearly a 20% increase in the percentage of people in the lowest income category using computers between 2000 and 2004, while Figure 15 shows a ***42% increase*** in the percentage of people in the same income category with ***home*** computer access. Put another way, in 2000, 69% of the lowest income computer users were using computers at home and in 2004, this jumped to 84%. At the higher end of the income scale, more than 90% of the households reported having a home computer in both years.

The next six figures should be considered as three pairs of figures. The first figure in each pair shows that by 2004, the type of Internet access (cable, DSL or dialup) in households with home Internet access seems to be less related to demographic factors typically associated with the "digital divide." They give the impression that demographic equalization of access has occurred. However, the second figure in each pair shows that these conclusions might be misleading because they don't consider the demographic disproportionality of having any home Internet access at all. Together, these figures show that if households without any access are excluded from the analysis, it seems that demographic factors are unrelated or less related to the type of access in the households. When they are included, it is clear that disproportionality, although diminishing, still remains.

**16. Among those with home Internet access, differences in type of access between ethnic groups are not significant in either year; diminished in 2004**

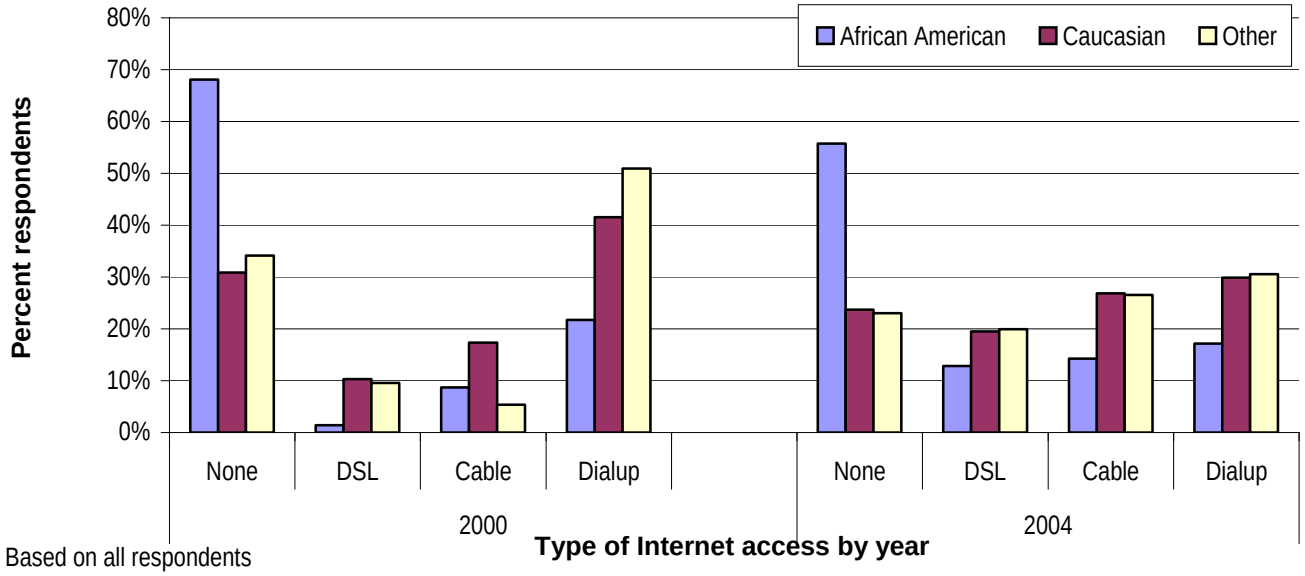



Based on respondents with Internet access
Source: 2004 Seattle IT Residential Survey

Figure 16 shows that by 2004, ethnicity is unrelated to type of Internet access *in those households with Internet access.* One might conclude from this figure that Seattle no longer has ethnic disproportionality in type of Internet access. Figure 17 shows that this is not the case. This figure shows a dramatic difference when those without home access are included. In both 2000 and 2004, African American households are significantly less likely to have any home Internet access (see Figure 7 above) and because of this overarching fact, the representation of African American households in any of the categories of type of Internet access is depressed. Thus, among households with Internet access in 2004, no ethnic differences were observed in

type of access. However, an important disproportionality emerges when considering households without access as well.

**17. African Americans more likely to have no home Internet access in 2000 and 2004; differences smaller in 2004 but still significant**

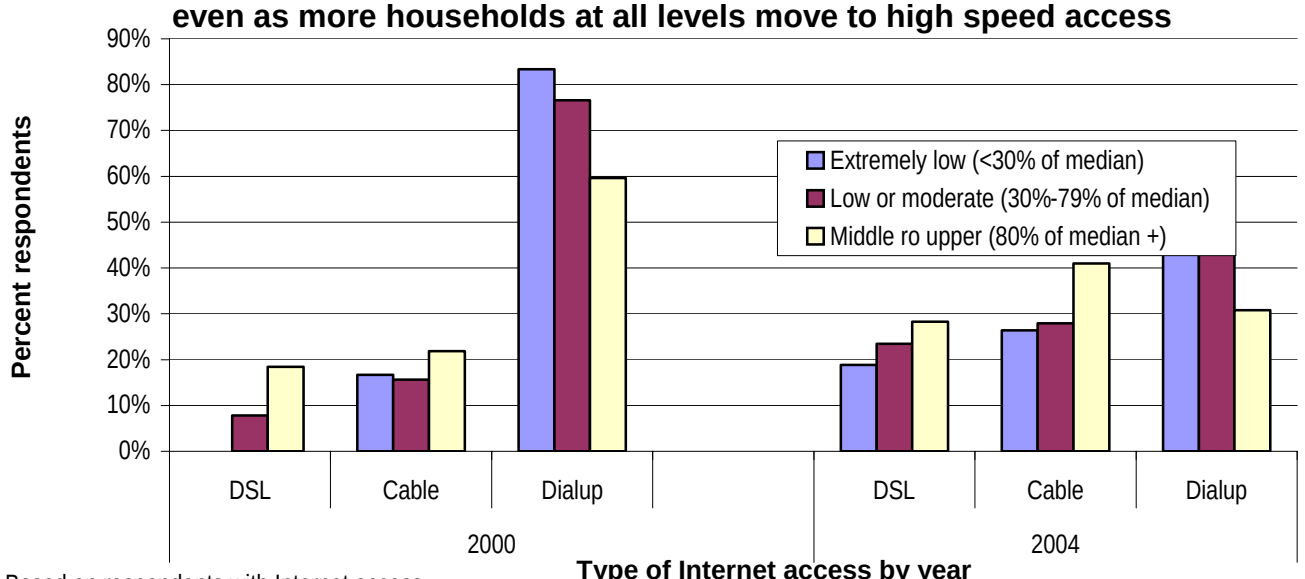



Based on all respondents

Source: 2004 Seattle IT Residential Survey

Figure 18 illustrates the relationship between household income and type of access in 2000 and in 2004 in household with Internet access. More households at all income levels have high-speed access in 2004 than in 2000. The relationship between type of access and income remains in 2004, but is less extreme.

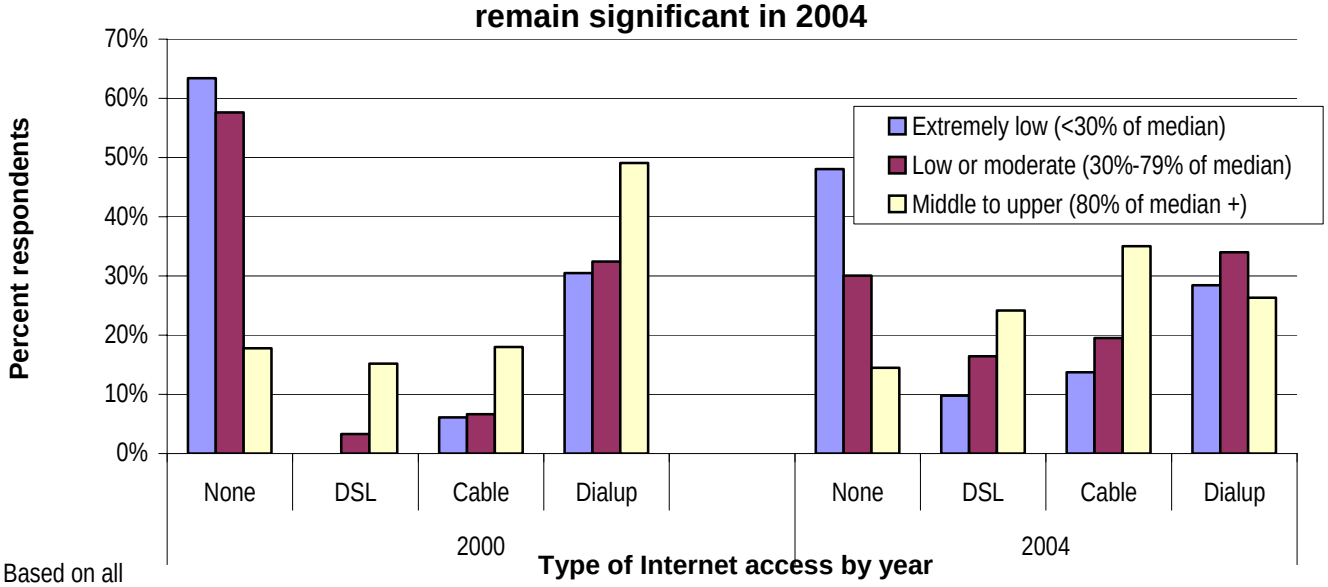
**18. Among those with home Internet access, low income households are more likely to have slower Internet access in both 2000 and 2004, even as more households at all levels move to high speed access**




Based on respondents with Internet access

Source: 2004 Seattle IT Residential Survey

**19. Households with less income are more likely to have no or slower home Internet access in 2000 and 2004; differences smaller but remain significant in 2004**



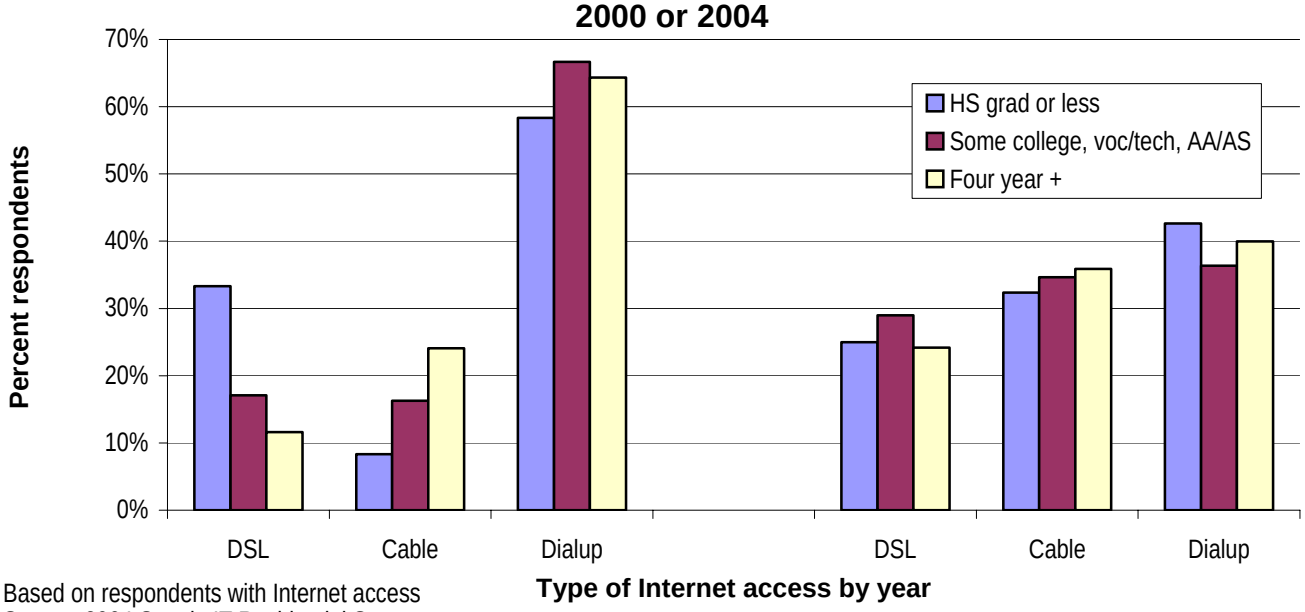

Based on all

Source: 2004 Seattle IT Residential Survey

As with ethnicity above, Figure 19 shows that when those without any Internet access are considered, it becomes clear that households with less income are considerably less well represented in all the access categories, and especially in the high-speed access categories. Figures 20 and 21 shows a similar pattern for the impact of education on type of Internet access. When those without home Internet access are excluded, education appears to be unrelated to type of home Internet access (Figure 20). But when those without home Internet access are included, the representation of those with less education in the high-speed access categories remains depressed (Figure 21), if less so than in 2000.

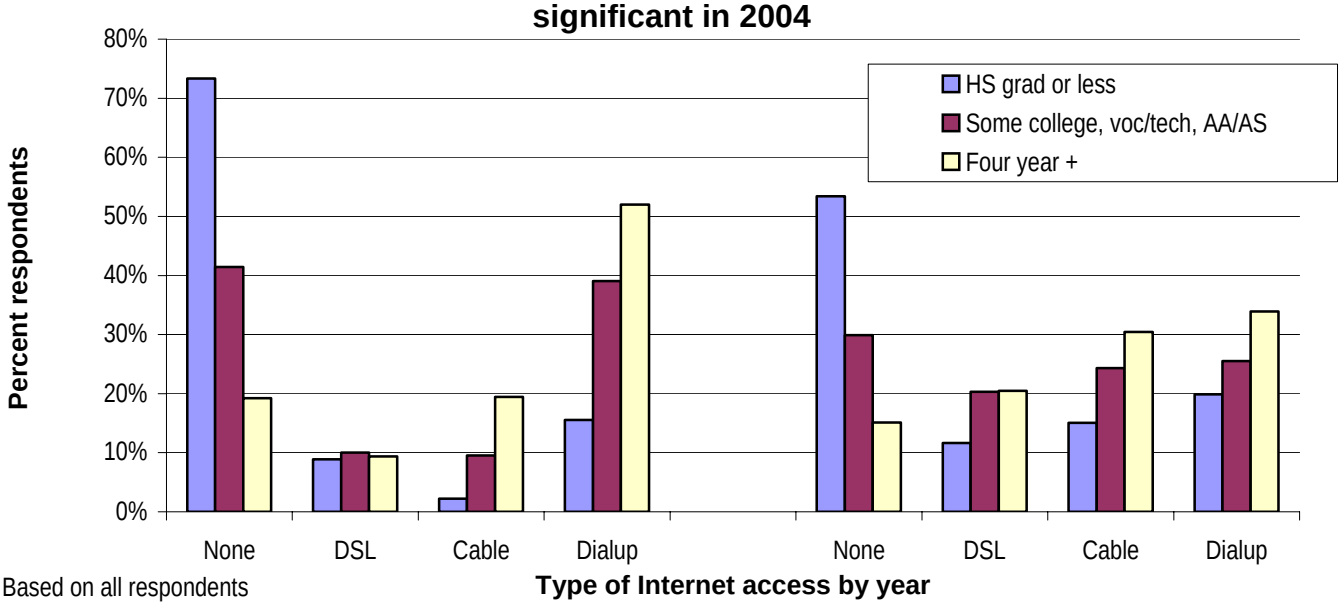
These figures show that demographic disproportionality in Internet access and type of access remains evident in 2004, and seems less extreme than in 2000.

**20. Among those with home Internet access, differences between households with different levels of education are not significant in 2000 or 2004**




Based on respondents with Internet access
Source: 2004 Seattle IT Residential Survey

**21. Households with less education are less likely to have any home Internet access in 2000 and 2004; differences smaller but remain significant in 2004**

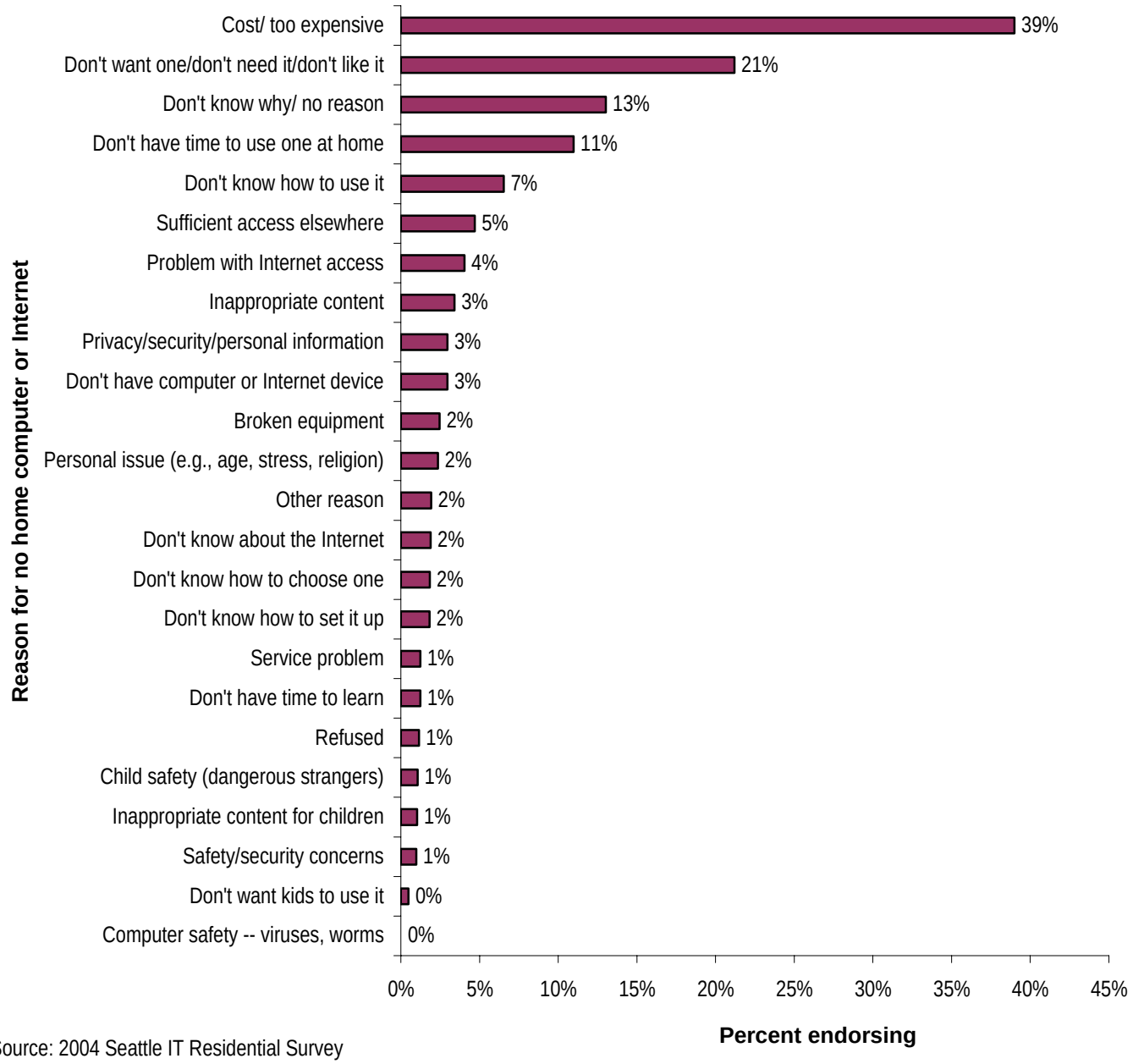



Based on all respondents
Source: 2004 Seattle IT Residential Survey

## *Respondents without home computer or Internet access*

The 241 respondents who said they don't have a home computer or have a home computer but no Internet were asked why not and allowed to volunteer as many reasons as they wished. Figure 22 summarizes the responses.

**22. Reasons for not having a home computer or Internet access**




Source: 2004 Seattle IT Residential Survey

The most frequently offered reason was the cost (39%). This reason was given as often by people without either a computer or Internet access as by people with a computer but no Internet access.

A similar question was asked in 2000. Direct comparisons are difficult to make because of differences in coding strategies. Summarizing broadly:

- The cost of home access has become a barrier for more residents (2000: 27%; 2004: 39%)
- About half as many people now say they have sufficient access elsewhere (2000: 10%; 2004; 5%)
- About half as many people now say they don't have access because they don't want or need it (2000: 40%; 2004: 21%)